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## DIRECTORATE OF INTELLIGENCE

14 August 1987

The Reliability of Soviet Published Statistics:  
Implications for CIA's Analysis of Soviet Economic Performance

Summary

During Mikhail Gorbachev's tenure as General Secretary of the CPSU, charges that Soviet economic statistics are unreliable have surfaced in both the Western and Soviet press. Such accusations are not new, but rather have to do with problems that have persisted for decades. Indeed, CIA constructs independent measures of Soviet economic performance largely because aggregate data published by the USSR's Central Statistical Administration are methodologically flawed and subject to manipulation by the leadership for political reasons. [redacted]

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To compute our measures, we use disaggregated and detailed statistics published by the Soviet authorities. We believe most of these data--expressed in physical units--are not falsified to any significant extent. The remaining data used, expressed in value terms, are less reliable mainly due to hidden inflation that causes some overstatement of growth. The exact extent of this bias is difficult to measure, however, because we are unable to accurately assess the degree of hidden inflation--especially in statistics on machinery production and investment. So far, Gorbachev's glasnost campaign has not had much impact on the availability of Soviet statistics and has had little perceptible impact on the quality of these data. [redacted]

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This memorandum was prepared in the Office of Soviet Analysis [redacted]  
[redacted] Comments and queries are  
welcome and may be addressed to the Chief, Defense Economics Division [redacted]  
[redacted]

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## Introduction

At a time when General Secretary Mikhail Gorbachev has made improvement of economic performance his highest priority goal, questions about the reliability of the USSR's official economic statistics are being raised by both Soviet and Western scholars.

- Several articles in US newspapers have reported Western economists' charges that the Soviets have manipulated key official statistical aggregates for several recent years.<sup>1</sup>
- A recent article in the Soviet periodical, Literaturnaya gazeta, questioned the soundness of data published by the Soviet Central Statistical Administration (CSA), contending, for example, that CSA statistics on retail price increases during 1980-85 are "downright untruthful, and the methodologies being used are false."<sup>2</sup>
- In the February 1987 issue of Novyy mir, two Soviet economists charged that official statistics on machine-building output overstate growth in this key sector of industry by a minimum of 5 percent per year.<sup>3</sup>
- During a recent lecture given at Moscow State University, a Soviet professor claimed that the official 1986 economic statistics give a distorted picture of the actual performance of the Soviet economy. Soviet figures on retail state and cooperative trade, for instance, show a 19.5 billion ruble increase over 1985. The professor claimed, however, that because of price increases actual trade turnover was the same as in 1985 (implying an inflation rate of six percent).

These kinds of accusations are not new; they have surfaced numerous times before. They reflect persistent problems with official Soviet statistical

<sup>1</sup> David R. Francis, "Soviets Exaggerate Economic Record, Western Experts Say," Christian Science Monitor (26 February 1987); Mark D'Anastasio, "Soviets Are Said To Practice Deception To Show Their Economy Is Improving," Wall Street Journal (10 March 1987); and Michael R. Gordon, "CIA's Report Revives Soviet-Growth Debates," New York Times (29 March 1987). Most of this reporting is based on longer analyses published by Jan Vanous of PlanEcon, Inc., and by Philip Hanson, writing for Radio Liberty. See Jan Vanous, "Soviet Economic Performance in 1986: Modest Improvement Clouded by the Release of Key Aggregate Economic Indicators Conflicting With Each Other," PlanEcon Report, Vol. III, No. 4-5, (4 February 1987), and "The Dark Side of 'Glasnost': Unbelievable National Income Statistics in the Gorbachev Era," PlanEcon Report, Vol. III, No. 6, (13 February 1987); Philip Hanson, "Puzzles in the 1985 Statistics," Radio Liberty Research Bulletin, RL 439/86 (20 November 1986); and "An Informal Note on the Soviet 1985 and 1986 Statistics," Sovset News (23 March 1987).

<sup>2</sup> Literaturnaya gazeta, 14 April 1987, p. 14.

<sup>3</sup> Vasiliy Selyunin and Grigoriy Khanin, "Lukavaya tsifra", Novyy mir, February 1987, pp. 181-201.

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data that have been described and analyzed by Western scholars<sup>4</sup> and that once led Dr. Abram Bergson, the doyen of Western specialists on the Soviet economy, to remark that "the measurement of Russian national income is too important a task to leave to Russian statisticians." This memorandum briefly discusses the historical reliability of Soviet statistics; assesses how, if at all, the quality and availability of Soviet data have changed under Gorbachev; and examines the implications of the deficiencies of Soviet statistics for CIA estimates of the USSR's economic performance. [REDACTED]

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### Historical Perspective

Despite its prominence as an economic power, the Soviet Union has a checkered history in the publication of economic data. Economic data published by the USSR have been sparse since the late 1920s primarily because of the Kremlin's obsession with state secrecy.

- Moscow releases, for example, almost no information on defense, on the industries that produce military equipment, or on nonferrous metallurgy, an industrial sector of strategic importance.
- The Soviets do not provide clear, if any, definitions or explanations of the methodologies used to calculate the various data series.
- Some of the methodologies that have been discussed, moreover, are faulty. A case in point is the published official price index for machinery output which shows machinery prices to be falling over time, despite overwhelming evidence to the contrary. The index is constructed in such a way that it does not reflect inflation introduced through the pricing of new products. [REDACTED]

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In addition, some of the data are manipulated for political purposes. Potentially embarrassing statistics are often not reported at all and sometimes are deliberately misstated.

- The Soviets, for example, did not publish statistics on the size of the grain crop from 1981 through 1985 because of poor harvests.
- The one defense spending figure that the Soviets publish--a single-line entry for "defense" in their annual state budget--represents only one-sixth of what we estimate Moscow spends on defense, and is manipulated by the leadership for propaganda purposes.<sup>5</sup> [REDACTED]

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Data Expressed in Physical Units. Research done over a number of years by the CIA and Western academics, however, indicates that the more disaggregated Soviet data expressed in physical units--such as tons, number of items, and square meters--usually provide a reliable representation of reality.

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<sup>4</sup> See, for example, Soviet Economic Statistics, edited by Vladimir G. Trem<sup>1</sup> and John P. Hardt (Durham, North Carolina: Duke University Press, 1972). [REDACTED]

<sup>5</sup> For a discussion of the meaning of the published "defense" budget see Robert E. Leggett and Sheldon T. Rabin, "A Note on the Meaning of the Soviet Defense Budget," Soviet Studies (October 1978) pp. 557-66. [REDACTED]

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- A comprehensive study of Soviet physical output statistics in the industrial sector by Gregory Grossman, a well-known US expert on the Soviet economy, found that these data "generally meet certain rough tests of internal and external consistency wherever such tests are possible and have been tried." According to Grossman, distortion in the data is limited by the interests of customers, the difficulties of concealing large inventory shortages, controls over the distribution of products and the allocation of inputs, the attention of authorities to this key segment of the economy, and possible severe penalties.<sup>6</sup>
- CIA studies of the Soviet 9th (1971-75) and 10th (1976-80) Five-Year Plans aggregated individual production targets expressed primarily in physical units to estimate the planned growth rate of total industrial production. The results were very close to the targets for production promulgated by the leadership--within one-tenth of a percentage point in both cases--further attesting to the reliability of these data .
- The Soviet economists Selyunin and Khanin, in their February 1987 Novyy mir article, while sharply critical of many types of Soviet statistics, endorsed the reliability of Soviet quantity-based data, noting that "...significant conclusions have been obtained by scholars who have calculated and compared the scale of production in physical terms or in terms of summary physical indicators."<sup>8</sup>
- A study of Soviet statistics by Stephen Shenfield of the Center for Russian and East European Studies, University of Birmingham, England, based on interviews with former Soviet statistical personnel concluded that, "The scope for statistical over-reporting (pripiski) varies appreciably from field to field...but appears usually to be relatively modest."
- A study by G. Warren Nutter for the National Bureau of Economic Research concluded that, "Soviet data on physical output present a picture of growth patterns that makes sense."
- Using information from the Soviet Interview Project, Susan J. Linz--a professor at Michigan State University--recently analyzed the extent of report falsification by managers in the USSR. In the study, managers describe falsifying reports as occurring only in marginal

<sup>6</sup> Gregory Grossman, Soviet Statistics of Physical Output of Industrial Commodities, (Princeton, New Jersey: Princeton University Press, 1960) pp. 127-129. [redacted]

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<sup>7</sup> See James H. Noren and F. Douglas Whitehouse, "Soviet Industry in the 1971-75 Plan", Joint Economic Committee, Congress of the United States, Soviet Economic Prospects for the Seventies (Washington, D.C.: Government Printing Office, 1973) pp. 206-245 [redacted]

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<sup>8</sup> Selyunin and Khanin, op. cit., p. 200. [redacted]

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magnitudes: "factories always keep a 1 percent margin" because "nobody complains about small errors." Managers reported fearing large falsifications: "falsifications on a grand scale are dangerous"; "the director would be fired"; "expelled from the Party"; "people were taken to prison as well." [redacted]

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Because there is intense pressure on Soviet managers and workers to fulfill production quotas, the temptation to pad output statistics, engage in such practices as "borrowing" against future production, or blatantly misrepresent production statistics is strong. Emigre reporting contains numerous examples of such behavior and anecdotal evidence of outright falsification is often reported in Soviet open sources. [redacted]

Constraining such behavior, however, is the fact that it is a criminal offense to falsify such data. Moreover, there are limitations on many of the practices employed by enterprise managers to falsify production data. For example, such practices as "borrowing" against future production cannot go on for long and the padding of inventories can run afoul of sudden audits by the authorities. Customers also act as a safeguard against padding since they can count and weigh the goods delivered to them. [redacted]

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As a result, although some padding of physical data does take place--witness recent Soviet reporting that statistics on cotton production in the Central Asian Republics have been falsified (see figure 1)--our judgment is that on balance the physical output data published by Moscow are generally reliable.<sup>9</sup> As suggested by the Soviet emigres interviewed by Shenfield and Linz, statistical falsification probably overstates actual production by no more than one or two percent and the amount of cheating probably does not vary much from one time period to another. If these judgments are correct, the levels of our estimates could be biased slightly upward, but the padding of the data would have no impact on our estimates of the growth of output from one time period to another. [redacted]

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Data Expressed in Value Terms. Our assessment of Soviet statistics expressed in ruble terms, in contrast, is a good deal less positive. Value data reported by the Soviets are described in official sources as being in "comparable" prices.<sup>10</sup> Western experts--and some Soviet researchers--maintain, however, that these data include disguised inflation. In practice two things commonly occur, both of which overstate the growth in the value of industrial production. First, Soviet managers will slightly alter the

<sup>9</sup> The prominence given the padding of cotton production statistics and the severe penalties handed out argue against widespread falsification of physical output measures. [redacted]

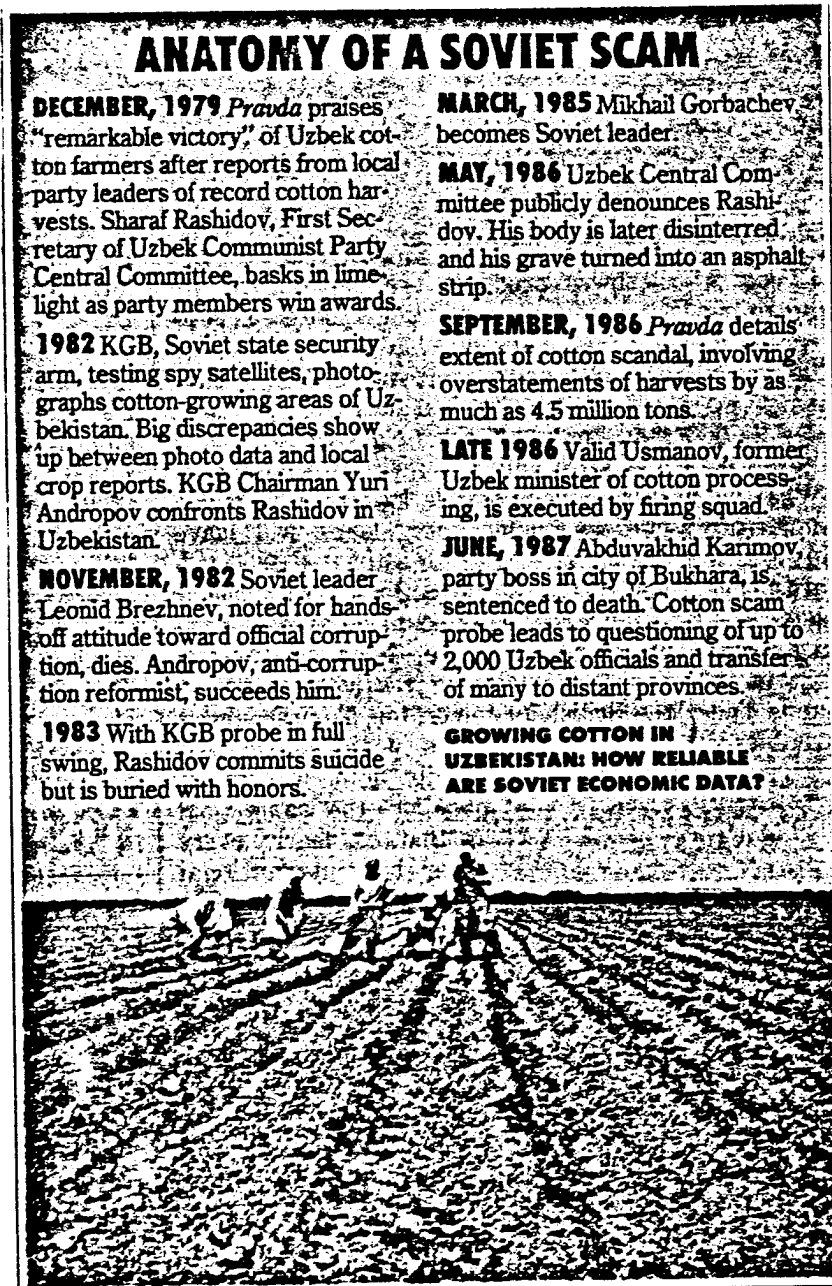
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<sup>10</sup> The Soviets employ a unique concept of "comparable prices" for reporting much of their economic data. Western economic theory has no counterpart to Soviet "comparable prices"; such statistics should not be compared with the concept of constant price data used in market economies. An index in "comparable prices" understates inflation and as such is a major reason for the unreliability of Soviet data expressed in value terms. [redacted]

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FIGURE 1



## ANATOMY OF A SOVIET SCAM

**DECEMBER, 1979** *Pravda* praises "remarkable victory" of Uzbek cotton farmers after reports from local party leaders of record cotton harvests. Sharaf Rashidov, First Secretary of Uzbek Communist Party Central Committee, basks in lime light as party members win awards.

**1982** KGB, Soviet state security arm, testing spy satellites, photographs cotton-growing areas of Uzbekistan. Big discrepancies show up between photo data and local crop reports. KGB Chairman Yuri Andropov confronts Rashidov in Uzbekistan.

**NOVEMBER, 1982** Soviet leader Leonid Brezhnev, noted for hands-off attitude toward official corruption, dies. Andropov, anti-corruption reformist, succeeds him.

**1983** With KGB probe in full swing, Rashidov commits suicide but is buried with honors.

**MARCH, 1985** Mikhail Gorbachev becomes Soviet leader.

**MAY, 1986** Uzbek Central Committee publicly denounces Rashidov. His body is later disinterred and his grave turned into an asphalt strip.

**SEPTEMBER, 1986** *Pravda* details extent of cotton scandal, involving overstatements of harvests by as much as 4.5 million tons.

**LATE 1986** Valid Usmanov, former Uzbek minister of cotton processing, is executed by firing squad.

**JUNE, 1987** Abduvakhid Karimov, party boss in city of Bukhara, is sentenced to death. Cotton scam probe leads to questioning of up to 2,000 Uzbek officials and transfer of many to distant provinces.

**GROWING COTTON IN UZBEKISTAN: HOW RELIABLE ARE SOVIET ECONOMIC DATA?**

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specifications of an old product and charge a substantially higher price for the purported "new" one. At the same time, the enterprise frequently halts production of the cheaper old item, thereby forcing purchasers to buy the more expensive "new" model. Second, even when a genuinely new product is introduced, a temporary price is set that often becomes an unjustifiably high permanent price. Because these higher prices are used in reporting enterprise output to planning and statistical authorities, the value of production reported--although categorized as being in "comparable" prices--is artificially inflated.

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Some sense of the extent of inflation in the Soviet machine-building sector can be gained by comparing the CIA's synthetic index of machinery output--estimated largely from physical data--with the officially published Soviet index. The results of this comparison--shown below--clearly indicate that the CIA estimates are consistently lower than the Soviet official measures.

Soviet and CIA Measures of Machinery Output  
(Average Annual Rates of Growth In Percent)

	<u>CIA Estimates</u>	<u>Soviet Measure</u>	<u>Difference</u>
1961-65	6.9	12.4	5.5
1966-70	6.9	11.7	4.8
1971-75	6.8	11.4	4.6
1976-80	3.9	8.2	4.3
1981-85	1.7	6.2	4.5

Calculations of disguised inflation derived from comparisons like this should, however, be interpreted with caution. Differences in methods of estimating growth of machinery output--such as coverage of products and selection of a base year for the index--undoubtedly contribute to the difference in results.

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Impact of Gorbachev's Policies

To judge from the limited evidence available so far, the impact of Gorbachev's policies on the reliability of Soviet economic statistics has been mixed. On the one hand, the General Secretary's glasnost (openness) campaign has led to the publication of some additional data and made it possible for Soviet journalists and economists to be more frank in their public assessments of the quality of official data. On the other hand, as Vanous and Hanson have recently noted, the Soviet statistical authorities have apparently resorted to some sort of creative accounting to obscure the impact of declining sales of alcohol--formerly a major component of consumption--on the volume of retail trade and the growth of national income.

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In keeping with Gorbachev's glasnost campaign, the Politburo recently considered measures designed to improve the quality of Soviet statistics.

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Writing in the CSA's monthly journal, the chief of the Central Statistical Administration, Mikhail Korolev, has identified two areas of Soviet statistics that need improvement: (1) the accuracy, timeliness, and the usefulness of information on fulfilling state plans and implementing programs to improve economic performance and (2) the coordination and rationalization of the statistical reporting system.<sup>12</sup> Korolev stressed the need for "unconditional trustworthiness" of Soviet statistics and announced several new vehicles for disseminating more data. [redacted]

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Premier Ryzhkov, speaking before a session of the Supreme Soviet this past June, included improvements in state statistics as an important part of the regime's restructuring program. In fact, one of the top priority tasks contained in the document adopted by the June Plenary meeting of the Central Committee, "Main Provisions for Fundamentally Reorganizing Economic Management" calls for Soviet statistics to be "radically revamped." Improvements in the availability, quality, coverage, and timeliness of economic data were specifically demanded. Moreover, the crackdown on corruption--including the execution of some officials--and the implementation of programs such as the tough new quality control programs in industry should help to minimize the amount of fraud that finds its way into Soviet statistics. [redacted]

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Because the campaign for better statistics is still in its early stages, it is too soon to expect that significant progress has yet been made. So far, there has been some limited increase in the availability of economic data.

- Some additional detail is being published on Moscow's annual plans, and the availability of plan fulfillment data has increased. For example, the latest edition of SSSR v tsifrakh, the interim statistical handbook published at midyear by CSA, includes planned production at a greater level of detail than was provided in several years. Moreover, Moscow's quarterly reports on plan fulfillment now include almost as much detail as previously contained in annual reports. In addition, some new statistical series have been released in Soviet economic journals.
- In the 1985 statistical yearbook, the first released under Gorbachev, an accounting of both deletions and additions showed a net positive increase of some 37 tables--some of which include totally new information, others of which were resumed after having been discontinued previously, and some of which were "old" tables that have been revised to contain more information. On the other hand, the proportion of tables with data given in physical units has declined and there has been a decrease in the amount of information published on the industrial sector.
- The most recent issue of SSSR v tsifrakh also contains a small increase in new information (several new social and demographic data series, data on urban garden plots, and truck deliveries to agriculture, as well as data on production targets for 1987). [redacted]

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<sup>12</sup> Mikhail Korolev, "Tasks of Restructuring Statistics," Vestnik statistiki, No. 4, 1987, pp. 3-12. [redacted]

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Meanwhile, the limits of openness are gradually becoming apparent. The regime appears eager to use glasnost to document the problems of the economy, and to bring public criticism to bear against managers and party officials responsible for failures to meet plan targets. It does not seem interested, however, in using glasnost to reveal bad news for the consumer, nor to release information on such sensitive areas as defense-related matters. [redacted]

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Whether or not more meaningful changes will be forthcoming is difficult to say. [redacted]

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At the same time, however, the pressures within the system to meet production targets and Gorbachev's focus on uskoreniye (acceleration) will create more pressures for cheating, padding data, inflating prices, and in general taking whatever measures are necessary to meet these goals. The 1986-90 Plan, for example, contains ambitious production targets and at the same time calls for a massive retooling of industry and the production of markedly higher quality output. Achieving these multiple goals simultaneously is, in our view, impossible given the depth and breadth of Moscow's economic problems. [redacted]

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#### Implications for CIA Estimates

The US intelligence community is tasked with measuring aggregate economic activity in the USSR to assess the Soviet threat and analyze Moscow's economic potential. Although the Soviets publish aggregate measures of their economic performance--in the form of annual figures on "national income"--for the reasons discussed above, these measures are highly suspect and are not used in our estimates of Soviet GNP and its components.<sup>13</sup> Nor, incidentally, do CIA estimates of the USSR's defense spending depend on any official Soviet statistics. [redacted]

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In constructing independent estimates of Soviet GNP we use the more disaggregated data published by Moscow--data on (1) quantities of output in physical units and (2) values of output in "constant" prices. In doing so, we judge that the reliability of these data is, for the most part, satisfactory. Regarding Soviet quantity data, exaggeration of output statistics probably is not a major problem. In fact, using quantity data probably results in some understatement of Soviet performance because such

<sup>13</sup> The Soviet concept of "national income"--labeled "net material product" in the West--differs from that used in Western GNP accounting. "Net material product," for instance, excludes some activities such as value added in the production of most services and capital consumption allowances (depreciation). In addition, the methodologies used to compile it are largely unknown, and real growth is overstated mostly because of inflation in industrial output that is reflected in national income in so-called comparable prices. [redacted]

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statistics do not reflect the full extent of improvements in the mix and quality of the goods and services produced in the economy. On the other hand, potential overstatement is a cause for concern in the estimates that depend on Soviet value data--such as machinery output where value data account for about 40 percent of the sample. These data are less reliable mainly because of distortions due to the hidden inflation that they include. [redacted]

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Although Western experts have debated the extent of inflation in Soviet machinery statistics for years without clearcut results, few have suggested that the long-term rate of inflation is higher than 5 percent per year.<sup>14</sup> Given that 40 percent of the sample used to estimate the output of machinery and equipment is expressed in value terms, even if the rate of inflation were as high as 5 percent a year, the impact on our estimates still would be relatively minor. Growth of industrial output would be overstated by a little more than half of a percentage point and GNP growth by about two-tenths of a percentage point. This is offset to some extent by the downward bias in the quantity series. The net effect of both factors results, we believe, in little overall bias in our estimates of economic growth in the USSR.<sup>15</sup> [redacted]

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<sup>14</sup> See, for example, A. Nove, "A Note on Growth, Investment and Price-Indices", Soviet Studies, No. 1 (January 1981) pp. 142-145; [redacted]

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[redacted] V. Fal'tsman and A. Kornev, "Rezervy snizheniya kapitaloyemkosti moshchnostey promyshlennosti", Voprosy ekonomiki, No. 6, 1984, pp. 36-46; Philip Hanson, "The CIA, the TsSU and Real Growth of Soviet Investment," Soviet Studies, No. 4 (October 1984) pp. 571-581. [redacted]

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<sup>15</sup> For a fuller discussion of this issue see Ray Converse, "An Index of Industrial Production in the USSR," published in USSR: Measures of Economic Growth and Development, 1950-80, Joint Economic Committee, Congress of the United States (Washington, D.C.: Government Printing Office, 1982), pp. 215-218. [redacted]

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## Appendix A

A Comparison of CIA Estimates and Official Soviet Statistics

A comparison of growth of GNP and net material product (NMP)--the official Soviet measure closest to GNP in definition--shows higher rates of growth for NMP (table A.1). The primary reason is a substantial degree of disguised inflation in the official figures. Besides correcting for this problem, GNP estimates also adjust for some of the distortions of the Soviet pricing system. Valuation of GNP at factor cost--reflecting the labor and capital resources used in production--improves our measurement of changes in the economy's ability to provide goods and services by adjusting for the following shortcomings of valuation in established (official) prices:

- o Large turnover (excise) taxes, mostly on consumer goods.
- o Subsidies, chiefly on food and services such as housing.
- o Wide variations in reported profits, which do not reflect the contribution of capital to output. [REDACTED]

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Like rates of NMP growth, official Soviet statistics on the growth of industrial output also tend to be overstated. CIA estimates for industry attempt to correct for disguised inflation and valuation in established prices as GNP estimates do. In addition, the most frequently reported Soviet measure of industrial growth includes double counting of output sold by one enterprise for use as inputs by others. We are able to reduce the impact of this double counting by removing it from the weights on which our estimates of industrial growth are based. [REDACTED]

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Disguised inflation is not a significant problem with official Soviet statistics on agricultural growth. Double counting of agricultural output, however, probably is more pervasive than in the case of industrial figures, and CIA estimates correct for it. [REDACTED]

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TABLE A.1

USSR: CIA and Official Soviet Measures of Economic Growth  
(Average annual rate of growth in percent)

	<u>1961-65</u>	<u>1966-70</u>	<u>1971-75</u>	<u>1976-80</u>	<u>1981-85</u>
Output					
CIA					
GNP <sup>a</sup>	4.9	5.1	3.0	2.3	1.9
Adjusted GNP <sup>b</sup>	5.0	5.3	3.3	2.3	1.8
Soviet measure <sup>c</sup>	6.5	7.8	5.7	4.3	3.6
Industry					
CIA <sup>a</sup>	6.5	6.2	5.5	2.7	2.0
Soviet <sup>d</sup>	8.6	8.5	7.4	4.4	3.7
Of which: Machinery					
CIA <sup>a</sup>	6.9	6.9	6.8	3.9	1.7
Soviet measure <sup>d</sup>	12.4	11.7	11.4	8.2	6.2

<sup>a</sup> Based on estimates of value added at 1982 factor cost.

<sup>b</sup> Net material product, derived from GNP by excluding services that do not contribute directly to material output. Also, weights used to calculate growth of adjusted GNP are estimates of value added in 1982 established prices, rather than at factor cost.

<sup>c</sup> "National income produced," or net material product.

<sup>d</sup> Gross value of output.

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